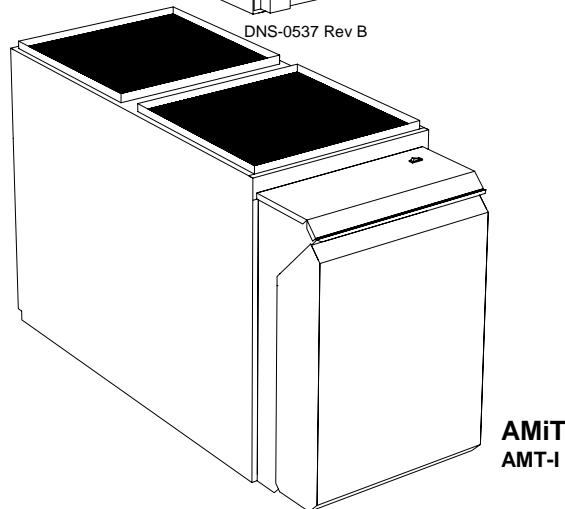
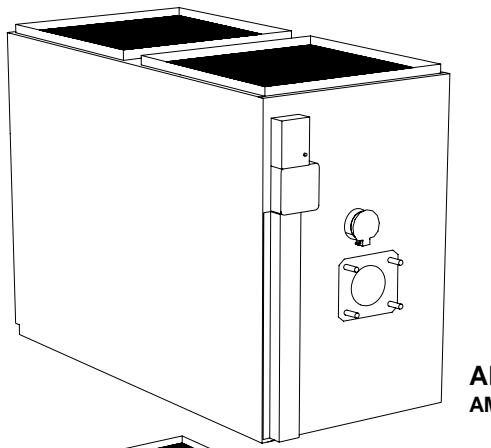


# *Installation Instructions and Homeowner's Manual*

## *OIL FIRED FURNACE LOW-BOY*



### **Models:**

**AMT100B34-SM1**  
**AMT100B34-IM2 (AMiT)**  
**AMT200B34-SM3**  
**AMT200B34-IM2 (AMiT)**



#### **INSTALLER / SERVICE TECHNICIAN:**

**USE THE INFORMATION IN THIS MANUAL FOR THE INSTALLATION AND SERVICING OF THE FURNACE. KEEP THE DOCUMENT NEAR THE UNIT FOR FUTURE REFERENCE.**

#### **HOMEOWNER:**

**PLEASE KEEP THIS MANUAL NEAR THE FURNACE FOR FUTURE REFERENCE.**

**Caution : Do not tamper with the unit or its controls.**

**Call a qualified service technician.**

Manufactured by:

**Dettson Industries inc.**

3400 Industrial Boulevard  
Sherbrooke, Quebec – Canada - J1L 1V8  
[www.dettson.ca](http://www.dettson.ca)

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## PART 1 INSTALLATION

### FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

DO NOT ATTEMPT TO START THE BURNER WHEN EXCESS OIL HAS ACCUMULATED, WHEN THE FURNACE IS FULL OF VAPOUR OR WHEN THE COMBUSTION CHAMBER IS VERY HOT.

#### 1.1) DANGER, WARNING AND CAUTION

The words DANGER, WARNING and CAUTION are used to identify the levels of seriousness of certain hazards. It is important that you understand their meaning. You will notice these words in the manual as follows:



#### DANGER

Immediate hazards which WILL result in death or serious bodily and/or material damage.



#### CAUTION

ENVIRONMENTAL HAZARD – Failure to follow this caution may result in environmental pollution. Remove and recycle all components or materials (i.e. oil, electrical and electronic components, insulation, etc.) before unit final disposal.



#### CAUTION

These instructions are intended for the sole use of qualified personnel trained in installing this type of furnace. Installation of this furnace by an unqualified person can lead to hazardous conditions, resulting in bodily harm and/or equipment damage.



#### WARNING

Hazards or unsafe practices which CAN result in death or serious bodily and/or material damage.



#### CAUTION

Hazards or unsafe practices which CAN result in minor bodily and/or material damage.

#### 1.2) SAFETY INSTALLATION REQUIREMENTS



#### WARNING

For use with grade 2 fuel oil maximum. Do NOT use gasoline, crankcase oil or any oil containing gasoline.



#### WARNING

Never burn garbage or paper in the heating system and never leave rags or paper around the unit.

**IMPORTANT:** All local and national code requirements governing the installation of oil burning equipment, wiring and flue connections MUST be followed. Some of the codes that may be applicable are:

CSA B139	Installation code for oil burning equipment
NFPA 31	Installation of oil burning equipment
ANSI/NFPA 90B	Warm air heating and air conditioning systems
ANSI/NFPA 211	Chimneys, fireplaces, vents and solid fuel burning appliances
ANSI/NFPA 70	National electrical code
CSA C22.1	Canadian electrical code

Only the latest issues of the above codes should be used, and are available from either:

The National Fire Protection Agency  
Batterymarch Park  
Quincy, MA 02269

or

The Canadian Standards Association  
178 Rexdale Blvd.  
Rexdale, Ontario  
M9W 1R3

## 1.3) GENERAL

This furnace is a Low-Boy unit and may be operated in an upflow configuration only.

It is shipped as a packaged unit, complete with burner and controls. It requires a line voltage (115 VAC) connection to the control box, a thermostat hook-up as shown on the wiring diagram, oil line connection(s), suitable ductwork, and connection to a properly sized vent.

The air handling capacity of this furnace is also designed for cooling. Refer to Table 5 for the expected airflow at various external duct static pressures, based on the model selected.

## 1.4) POSITIONING THE FURNACE

The unit must be installed in a location where the ambient and return air temperatures are above 15°C (60°F).

### CAUTION

This furnace is not watertight and is not designed for outdoor installation. This furnace shall be installed in such a manner as to protect the electrical components from water. Outdoor installation will lead to hazardous electrical conditions and to premature furnace failure.

This furnace is approved for reduced clearances to combustible construction; therefore, it may be installed in a closet or similar enclosure. This unit may be located in a basement or on the same level as the area to be heated. Whichever the case, the unit must always be installed level.

In a basement, or when installed on the floor, as in a crawlspace, it is recommended that the unit be installed on a concrete pad that is 2.54 to 5.08 cm (1 to 2") thick.

**The required minimum clearances for this furnace are specified in Table 6**

The furnace should be positioned as closely as possible to the chimney or vent in order to keep vent connections short and direct. It should also be as close as possible to the centre of the air distribution system.

### 1.4.1) Air for combustion and ventilation

Refer to the CAN/CSA-B139 installation code for complete regulations, and for guidance on retrofit applications.

This furnace must be installed in a location that provides sufficient air for proper combustion, appropriate venting and the maintenance of an ambient temperature at safe limits under normal conditions of use. The location should not interfere with proper circulation of air within the confined space.

When this furnace is installed in a closet or enclosure, 2 ventilation openings are required for combustion air. The openings should be located about 15.24 cm (6") from the top and the bottom of the enclosure at the front of the furnace. Table 1 indicates the minimum ventilation opening dimensions required.

**Table 1: Minimum ventilation openings dimensions required in a closet or enclosure**

Input (BTU/h)	Width	Height
75,000 – 105,000	0.4 mm (16")	0.20 mm (8")
120,000 – 155,000	0.5 mm (20")	0.25 mm (10")

### CAUTION

Do not block the combustion air openings in the furnace. Any blockage will result in improper combustion and may result in a fire hazard and/or cause bodily harm.

### Chimney installation only

The barometric draft regulator shall be installed in the same room or enclosure as the furnace, in such a manner as to prevent any difference in pressure between the regulator and the combustion air supply.

Air requirements for the operation of exhaust fans, kitchen ventilation systems, clothes dryers, and fireplaces shall be considered in determining the adequacy of the space to provide the required combustion air.

In unconfined spaces, in buildings of conventional frame, brick or stone construction, infiltration may be adequate to provide air for combustion, ventilation and dilution of flue gases. This determination must be made on an individual installation basis and must take into consideration the overall volume of the unconfined space, the number of windows and ventilation openings, the number of doors to the outside, internal doors which can close off the unconfined space and the overall tightness of the building construction.

Many new buildings and homes (even older ones that have been weatherized) must be considered as being of tight construction and, therefore, infiltration will not be sufficient to supply the necessary air for combustion and ventilation.

A building can be considered as being of tight construction when:

- Walls and ceilings exposed to the outside have a continuous water vapour retarder with a rating of one perm or less, with openings hermetically sealed and/or;
- Weather-stripping has been added on operable windows and doors, and/or;
- Caulking or sealant have been applied to areas such as joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and fuel lines and at other openings.

If combustion and ventilation air must be supplied to an unconfined space from the outside, an opening with a free area of not less than  $6.45 \text{ cm}^2$  (one inch<sup>2</sup>) per 1,000 BTU per hour of total input of all appliances within the unconfined space, but not less than  $645.16 \text{ cm}^2$  (100 inches<sup>2</sup>) must be provided. This opening must be located such a way that it cannot be blocked in any way, at any time.

#### 1.4.2) Duct recommendations

The proper sizing of warm air ducts is necessary to ensure satisfactory furnace operation. Ductwork should be in accordance with the latest editions of ANSI / NFPA-90A (Installation of Air Conditioning and Ventilating Systems) and NFPA-90B (Warm Air Heating and Air Conditioning Systems) or Canadian equivalent.

The supply air ductwork should be attached to the flanged front opening provided at the discharge end of the furnace and the return air ductwork should be attached to the flanged rear opening of the furnace. See Figures 2, 3, 4 and 5, for the dimensions of these openings, based on the model selected.

The following recommendations should be followed when installing ductwork:

- a. Install locking type dampers in all branches of the individual ducts to balance out the system. Dampers should be adjusted to achieve the desired static pressure at the outlet of the furnace;
- b. A flexible duct connector of non-combustible material should be installed on both the supply and return air sections of the unit. On applications where an extremely quiet operation is necessary, the first 3 m (10') of supply and return ducts should be internally lined with acoustical material, if possible;
- c. In cases where the return air grille is located close to the fan inlet, there should be at least one 90° air turn between the fan inlet and grille. Further reduction in noise levels can be achieved by installing acoustical air turning vanes or by lining the duct as described in b. above;
- d. When a single air grille is used, the duct between the grille and the furnace must be the same size as the return opening in the furnace.



#### WARNING

Return air grilles and warm air registers must not be obstructed.



#### CAUTION

When ducting supplies air to a space other than where the furnace is located, the return air ducts must be sealed and also be directed to the space other than where the furnace is located. Incorrect ductwork termination and sealing will create a hazardous condition that can lead to bodily harm.

#### 1.4.3) Venting instructions (chimney installation)

The furnace must be vented to the outside, in accordance with local codes and other authorities having jurisdiction.



#### CAUTION

Oil fired appliances must be connected to flues having sufficient draft at all times to ensure safe and proper combustion.

For additional venting information refer to ANSI / NFPA 211 Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances and/or CSA B139 Installation Code.

This furnace is certified for use with a Type "L" vent.

#### Pre-installation inspection of vent system

Before installing this furnace, it is highly recommended that any existing vent system be completely inspected.

This inspection should include the following:

- a. Inspection for any deterioration in the chimney or vent. If deterioration is discovered, the chimney must be repaired or the vent must be replaced;
- b. Inspection to ascertain that the vent system is clear and free of obstructions. Any blockages must be removed before installing this furnace;
- c. Cleaning the chimney or vent if previously used for venting a solid fuel burning appliance or fireplace;
- d. Confirming that all unused chimney or vent connections are properly sealed;
- e. Verification that the chimney is properly lined and sized per the applicable codes (refer to list of codes in section 1.2).

#### Masonry Chimney

This furnace can be vented into an existing masonry chimney. However, it must not be vented into a chimney servicing a solid fuel burning appliance. Before venting this furnace into a chimney, the chimney must be checked for deterioration and repaired if necessary. The chimney must be properly lined and sized per local or national codes.

If the furnace is vented into a common chimney, the chimney must be of sufficient area to accommodate the total flue products of all appliances vented into the chimney.

Following are the preconditions for a safe venting system:

- a. Ensure that the chimney flue is clear of any dirt or debris;
- b. Ensure that the chimney is not servicing an open fireplace;
- c. Never reduce the pipe size below the outlet size of the furnace;
- d. All pipes should be supported using the proper clamps and/or straps. These supports should be at least every 1.2 m (4');
- e. All horizontal runs of pipe should have an upward slope of at least 2 cm per 1 m (1/4" per 1');
- f. All runs of pipe should be as short as possible with as few turns as possible;
- g. Seams should be tightly joined and checked for leaks;
- h. The flue pipe must not extend into the chimney but be flush with the inside wall;
- i. The chimney must extend 0.9 m (3') above the highest point where it passes through a roof of a building and at least 0.6 m (2') higher than any portion of a building within a horizontal distance of 3 m (10'). It shall also be extended at least 1.5 m (5') above the highest connected equipment flue collar;
- j. Check local codes for any variances.

#### Factory Built Chimneys

The furnace may be used with an approved factory built chimney. Refer to chimney manufacturer's instructions for proper installation.

#### 1.4.4) Venting instructions (Sealed Combustion System)

Refer to the sealed combustion system (VTK) Instruction Manual (X40142).

#### 1.4.5) Oil burner

This furnace is supplied with a high pressure atomizing retention head type burner (for use with not heavier than grade 2 fuel oil). If the burner model is a Beckett AFG, the mounting flange is fixed to the burner air tube and no adjustment is required for insertion length. If a Riello burner is used, refer to the Technical Specifications, Table 3 for the insertion length.



## CAUTION

**NEVER** use the "interrupted ignition" function if a Honeywell R7184 series combustion relay is installed on the burner.

### Oil Connections

Complete instructions for the installation of the fuel oil piping can be found in the oil burner installation instructions included with the furnace.

On models with a vestibule, 2 oil line entry holes are provided in the side panels, so that a two-pipe system may be used, if desired.

A 10 (or finer) micron oil filter should be used with all oil burners and installed as closely as possible to the burner.

### Barometric Draft Control

A barometric draft control must be used with the furnace in chimney venting to ensure proper operation. Installation instructions are enclosed with the control.

### 1.4.6) Electrical

The appliance must be installed in accordance with the current ANSI / NFPA 70 National Electrical Code / CSA C22.1 Canadian Electrical Code Part 1 and/or local codes.

The control system depends on the correct polarity of the power supply. Connect "HOT" wire (H) and "NEUTRAL" wire (N) as shown in Figures 6, 7 and 8, based on the model selected.

A separate line voltage supply should be used with fused disconnect switch or circuit breaker between the main power panel and the unit.



## CAUTION

The furnace cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. A green ground screw is provided in the control box for this connection.

Use only copper wire for 115V power supply to the unit.

Metallic conduit (where required/used) may terminate at the side panel of the unit. It is not necessary to extend the conduit inside the unit from the side panel to the control box.

When replacing any original furnace wiring, use only 105°C, 16 AWG copper wire.

Instructions for wiring the thermostat are enclosed in the thermostat carton (field supplied). Make the thermostat connections as shown in Figures 6, 7 and 8, based on the selected model at the 24 Volt terminal board on the primary relay.

**Table 2: Air filter dimensions for return air duct**

Furnace Model	Air Filter Quantity and Size	Supply Opening Size	Return Opening Size
AMT1-IM2, AMT1-SM1	(2) 12" x 20"	0.5 m x 0.5 m (20" x 20")	0.5 m x 0.5 m (20" x 20")
AMT2-IM2, AMT2-SM3	(2) 16" x 20"	0.6 m x 0.5 m (24" x 20")	0.55 m x 0.5 m (22" x 20")

When installing optional accessories on this appliance, follow the manufacturer's installation instructions included with the accessory. Other than wiring for the thermostat, wire with a minimum of type "T" insulation (17°C rise (63°F)) must be used for accessories.

### 1.4.7) Air filter

An internal filter rack, located in the blower compartment, is provided as standard equipment with this furnace. A sufficient clearance should be provided for air filter access. Refer to Table 2 for filter rack flange dimensions for the return air duct.



## DANGER

Do not use this furnace as a construction heater. Use of this furnace as a construction heater exposes it to abnormal conditions, contaminated combustion air and the lack of air filters. Failure to follow this warning can lead to premature furnace failure and/or vent failure that could result in a fire hazard and/or bodily harm.

### 1.5) Blocked vent shut-off (BVSO) For chimney venting



## WARNING

It is imperative that this device be installed by a qualified agency.

This device is designed to detect the insufficient evacuation of combustion gases in the event of a vent blockage. In such a case the thermal switch will shut down the oil burner. The device will then need to be re-armed MANUALLY.

Refer to the wiring diagrams and the detailed instructions supplied with the BVSO for the installation and wiring procedures. The length of wires supplied with the unit is such that the safety device must be installed between the flue outlet of the appliance and the draft regulator, as indicated in the instructions.

It is also essential that the BVSO be maintained annually. For more details refer to the instructions supplied with the device itself, as well as Section 3 of this Manual.



## CAUTION

A positive pressure venting system (Sealed Combustion System or Direct Vent) **MUST NOT** use the BVSO. Follow the instructions supplied with the venting system.

## PART 2 OPERATION

### 2.1) OPERATIONAL CHECKLIST

- 1=> Is the electrical wiring completed according to Figures 6, 7 and 8?
- 2=> Is the blower access door secured in place?
- 3=> Is the valve on the oil line open?
- 4=> Is the "RESET BUTTON" on the primary control pushed down?
- 5=> Are the flame observation door and the two cleanout access doors located at the front of the unit closed?
- 6=> Is the room thermostat in the heating mode and set above room temperature?
- 7=> If yes, put the main electrical switch to the "ON" position and the burner should start.



#### CAUTION

Do not tamper with the unit or its controls. Call a qualified service technician.

### 2.2) COMBUSTION CHECK

In order to obtain optimum performance from the oil burner, the following set-up procedures must be followed (refer to the technical specifications, Table 3, in this manual):

1. Using a test kit, measure the smoke level and adjust it to a "trace" level (between 0 and 1). It is recommended to use a Bacharach true spot smoke test set or equivalent;
2. For chimney installation only: in order to ensure the proper draft through the furnace, a barometric draft regulator must be installed as closely to the breach of the furnace as possible. In order for this device to function properly, the barometric damper must be mounted with the hinge pin horizontal and the face of the damper vertical (see instructions included with damper). The draft regulator should be adjusted after the furnace has been firing for at least five minutes and set between -.025" W.C. and -.035" W.C.;
3. For flue pipe pressure on sidewall installations (VTK), refer to the technical specifications, Table 3, in this manual;
4. The overfire draft, which is taken through the observation door (located in the center line above the burner in the front panel of the furnace), is a measurement that is necessary to determine if there is a blockage in the heat exchanger or the flue pipe. Refer to the Technical Specifications in this manual for overfire pressure values. A high pressure condition may be caused by excessive combustion air due to the air band being too wide open or a lack of flue draft (chimney effect) or some other blockage, such as soot, in the secondary section of the heat exchanger or the use of an oversize nozzle input or high pressure pump;

5. The CO<sub>2</sub> and flue temperature instruments will enable you to obtain the data that are required to determine the terminal efficiency of the furnace. Although this information is good to have, it is not essential in the basic set up of the furnace. The proper procedure for performing this operation is as follows:

- a. Start the appliance and from the test port near the BREACH PLATE (VTK) location or on the flue pipe just before the draft regulator (chimney), proceed with smoke test and adjust the burner to get between a trace to a #1 smoke rating after a minimum of 5 minutes of operation;
- b. Take a CO<sub>2</sub> reading and write it down;
- c. Open the burner air shutter to get 1.5% CO<sub>2</sub> less than the previous reading and take a smoke test in this condition;
- d. The new reading should now be ZERO smoke;

6. A 10 micron (or finer) oil filter should be installed as closely to the burner as possible, on all oil burners, but it is particularly essential on lower firing rate burners. We recommend the use of a low pressure drop oil filter with a greater capacity than the fuel pump;

7. On a new installation, the air entrapped in the oil line leading from the tank to the nozzle must be thoroughly purged in order to prevent excessive after drip. The oil pump is provided with a special fitting that will enable you to purge any air between the tank and oil pump;

The proper procedure for performing this operation is as follows:

- a. Place a piece of 6 mm (1/4") diameter clear plastic tubing over the purge fitting on the oil pump;
- b. Start the oil burner, then open the purge fitting and allow the burner to run until the purge tube is completely free of air bubbles;
- c. At this point tighten the purge fitting, which will allow the oil to run to the nozzle and fire the burner. If the purging takes longer than 15 seconds and no flame has been established the burner will stop. Push the reset button on top of the Primary Control to restart burner.

For detailed information on the operation of the Primary Control refer to the instructions included with the furnace or burner.

8. After all the set-up procedures mentioned above are completed, the burner should be fired and an inspection mirror should be used to observe the flame pattern at the tip of the nozzle. Any irregularities such as burning to one side or pulsating flame patterns should be corrected by changing the nozzle.

### 2.3) FAN ADJUSTMENT CHECK

This furnace is equipped with a 4 speed direct drive motor to deliver a temperature rise within the range specified on the rating plate.

Adjust the fan speed ACCORDING TO THE OIL INPUT SELECTED, so that the temperature rise is within the range specified on the rating plate (see Table 3). Consult the wiring diagram for speed changes on the direct drive motor.

The blower start / stop is controlled by a helical bi-metal Fan-Limit Control, which is adjusted to start at 43°C (110°F) and stop at 32°C (90°F). These are factory set limits which must not be changed or tampered with.

## 2.4) LIMIT CONTROL CHECK

The Limit Control is factory adjusted according to Figure 1.. After the furnace has been in operation for at least 15 minutes, restrict the return air supply by blocking the filters or closing the return registers and allow the furnace to shut down on high limit. The burner will shut OFF and the main blower should continue to run.

Remove the restriction and the burner should come back on in a few minutes.

### For Year Round Air Conditioning

The furnace is designed for use in conjunction with cooling equipment to provide year round air conditioning. The blower has been sized for both heating and cooling; however, the fan motor speed may need to be changed to obtain the necessary cooling airflow.

#### Heating

The blower speed is factory set to deliver the required airflow at normal duct static pressure.

#### Cooling

The blower speed may be adjusted in the field to deliver the required airflow for cooling, as outlined in Table 5, according to the selected model.

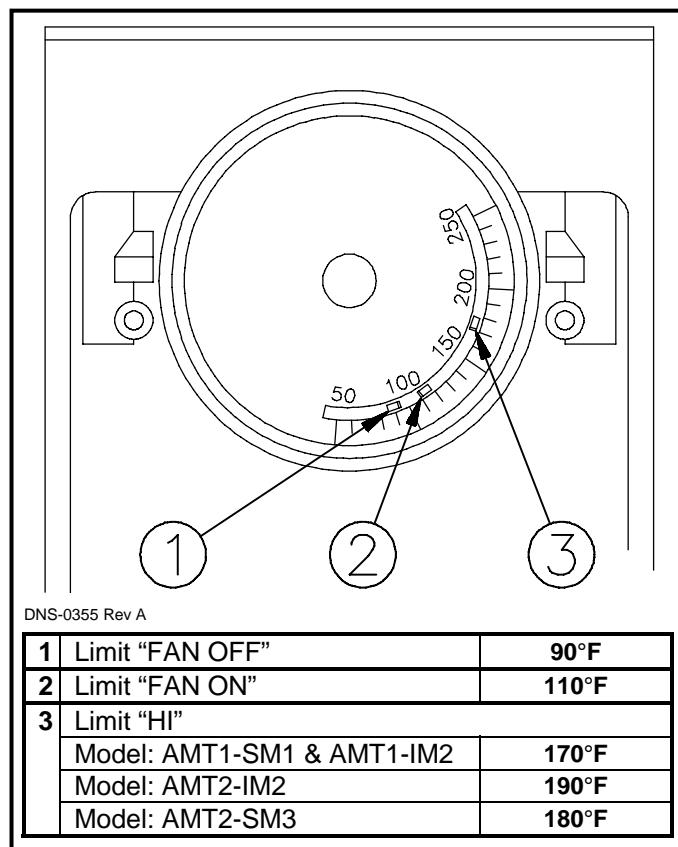
#### Constant Blower Switch

This furnace is equipped with a constant low speed blower option. Whenever the room thermostat is not calling for heating or cooling, the blower will run on low speed in order to provide air circulation. If this constant blower option is not desired, the rocker switch on the side of the control box can be used to "turn off" this feature.

### 2.4.1) Fan-Limit adjustment and blower regulator

Modification of the "FAN ON" and "HI" limit settings on the Fan-Limit can cause malfunctioning of the furnace and result in premature wear of the heat exchanger.

**Figure 1: Fan-limit adjustment and blower regulator**



#### CAUTION

Modification of the factory set limits will void the warranty.

## PART 3 MAINTENANCE

This furnace should never be operated without an air filter. Disposable filters should be replaced at least once a year. If equipped to provide cooling, filters should be replaced a minimum of twice a year.

To avoid personal injury, make sure the power is "OFF" before servicing.

ALWAYS KEEP THE OIL VALVE CLOSED IF THE BURNER IS SHUT DOWN FOR AN EXTENDED PERIOD OF TIME.

### **WARNING**

Be sure to turn all power "OFF" upstream from the unit when servicing the furnace, unless power is required for specific operations. Failure to comply with this CAUTION can result in bodily harm and/or cause a fire hazard.

For optimum performance, the oil burner nozzle should be replaced at least once a year.

The procedure for the installation and/or replacement of a nozzle is outlined in the oil burner instruction manual which is supplied with the furnace.

After replacing the nozzle, the burner should be adjusted in accordance with the "COMBUSTION CHECK" section of this manual.

### 3.1) HEAT EXCHANGER CLEANING

Normally, it is not necessary to clean the heat exchanger or flue pipe every year, but it is advisable to have a qualified service technician check the unit before each heating season to determine whether cleaning or replacement of parts is required.

If cleaning is necessary, the following steps should be followed:

1. Turn "OFF" all power upstream from the furnace;
2. Disconnect the flue pipe and breach plate. On sealed combustion systems do not disconnect the flue pipe, remove the breach plate only;
3. Remove the radiator baffle;
4. Disconnect the oil line and remove the oil burner from the furnace;
5. Clean the secondary tubes and the primary cylinder with a stiff brush and remove debris with a vacuum cleaner;
6. Before reassembling the furnace, the heat exchanger and combustion chamber should be inspected to determine if replacement is required;
7. After cleaning, replace the radiator baffle, flue collar plate and oil burner;
8. Readjust burner for proper operation.

### 3.2) BLOWER REMOVAL

To remove the blower from the furnace:

1. Turn "OFF" all power upstream from the furnace;
2. Remove blower access door;
3. Remove the 4 blower retaining wing-nuts;
4. Slide the blower on the rails toward the rear of the unit;
5. Reverse the above steps to reinstall the blower. (Refer to wiring diagram Figures 6, 7 and 8 of this instruction manual or the diagram located on the inside of the blower door to properly rewire the unit.

### 3.3) BLOCKED VENT SHUT OFF (BVSO) CLEANING

For continued safe operation, the Blocked Vent Shut-Off System (BVSO) needs to be inspected and maintained annually by a qualified service technician.

1. Disconnect the power to the appliance;
2. Remove the two screws holding down the BVSO assembly cover;
3. Remove the cover;
4. Remove the two screws holding the control box to the heat transfer tube assembly. Sliding the control box in the appropriate direction will unlock it from the heat transfer tube assembly;
5. Carefully remove any build-up from the thermal switch surface;

### **CAUTION**

Do not dent or scratch the surface of the thermal switch. If the thermal switch is damaged, it must be replaced.

6. Clear and remove any build-up or obstruction inside the heat transfer tube;
7. Re-mount, lock and fasten the control box with the 2 screws removed in step 4;
8. Re-attach the assembly cover with the screws removed in step 2;
9. Re-establish power to the appliance.

## PART 4 INFORMATION

Model: \_\_\_\_\_ Serial number: \_\_\_\_\_

Furnace installation date: \_\_\_\_\_

Service telephone # - Day: \_\_\_\_\_ Night: \_\_\_\_\_

Dealer name and address:  
\_\_\_\_\_  
\_\_\_\_\_

### START-UP TEST RESULTS

Nozzle: \_\_\_\_\_ Pressure: \_\_\_\_\_ lb/psi

Burner adjustments: Primary air \_\_\_\_\_

Fine air \_\_\_\_\_

Drawer Assembly \_\_\_\_\_

CO<sub>2</sub>: \_\_\_\_\_ % Smoke scale: \_\_\_\_\_ (Bacharach)

Gross flue temperature: \_\_\_\_\_ °F

Ambient temperature: \_\_\_\_\_ °F

Chimney draft: \_\_\_\_\_ " W.C."

Overfire draft: \_\_\_\_\_ " W.C."

Test performed by: \_\_\_\_\_

**Table 3: Technical specifications for models AMT1/AMT2 (with 3/4 motor)**

Models: AMT1 and AMT2	75	90	105	120	140	155
<b>RATING AND PERFORMANCE</b>						
Firing rate (USGPH)	0.50	0.65	0.75	0.85	1.00	1,10
Input (BTU/h)	70 000	91 000	105 000	119 000	140 000	154 000
Heating capacity (BTU/h)	57 000	74 000	85 000	97 000	115 000	126 000
Heating temperature rise	13 - 29°C (55 - 85°F)			13 - 29°C (55 - 85°F)		
Flue draft minimum (W.C.) (chimney)	(-0.06" to -0.025")			(-0.06" to -0.025")		
Overfire pressure (W.C.) (chimney)	(+0.010" to 0.025")			(max +0.025")		
Flue draft minimum (W.C.) (direct vent)	X			(+0.10" to +0.25")		
Overfire pressure (W.C.) (direct vent)	X			(+0.12" to +0.27")		
<b>BECKETT BURNER; MODEL AFG (3450 rpm)</b>						
	<b>AFG-F3 (tube insertion 2 7/8")</b>			<b>AFG-F3 (ins. 2 7/8")</b>		<b>AFG-F6(2 7/8")</b>
Low firing rate baffle	APPLICABLE			APPLICABLE		APPLICABLE
Static disc, model	3 3/8" # 31646			2 3/4" # 3383		2 3/4" # 3383
Nozzle (Delavan)	0.50 - 70W	0.55 - 70B	0.65 - 70B	0.75 - 70B	0.85 - 70B	0.85 - 70B
Pump pressure (PSIG)	100	140	130	130	140	170
Combustion air adjustment (band/shutter)	0 / 5	0 / 7	0 / 8	1 / 8	4 / 4	2 / 8
AFUE % (From CSA B212 standard and Canadian)	82,4%	80,9%	81,1%	81,4%	80,3%	80,1%
<b>RIELLO BURNER 40-F (Chimney vent)</b>						
	<b>F3 (tube insertion 3 9/16")</b>			<b>F5 (tube insertion 3 9/16")</b>		
Nozzle (Delavan)	0.40 - 70A	0.50 - 70W	0.65 - 70W	0.75 - 70B	0.85 - 70W	1.00 - 70W
Pump pressure (PSIG)	155	170	135	130	140	125
Combustion air adjustment (turbulator/damper)	0 / 3	0 / 3.5	0 / 4	0 / 3	0 / 3.5	0 / 4
AFUE % (From CSA B212 standard and Canadian regulation)	84,4%	82,9%	83,1%	84,7%	83,9%	83,1%
<b>RIELLO BURNER 40-BF (Direct vent)</b>						
				<b>BF5 (tube insertion 2 3/4")</b>		
Nozzle (Delavan)	X			0.75 - 70B	0.85 - 70W	1.00 - 70W
Pump pressure (PSIG)	X			130	140	125
Combustion air adjustment (turbulator/damper)	X			0 / 3.75	1/4	1.5/5
AFUE % (From CSA B212 standard and Canadian regulation)	X			84.7%	83.9%	83.1%
<b>ELECTRICAL SYSTEM</b>						
Volts - Hertz - Phase	115 - 60 - 1			115 - 60 - 1		
Operating voltage range	104 - 132			104 - 132		
Rated current (Amps)	12.2			15.7		
Minimum ampacity for wiring sizing	13.7			18.1		
Max. wire length	26'			26'		
Max. fuse size (Amps)	15			20		
Control transformer	40 VA			40 VA		
External control power available	Heating	40 VA			40 VA	
	Cooling	30 VA			30 VA	
<b>BLOWER DATA</b>						
Blower speed at 0.50" W.C. static pressure	MED-LOW	MED-HIGH	HIGH	MED-LOW	MED-HIGH	HIGH
Blower speed at 0.25" W.C. static pressure	MED-LOW	MED-HIGH	HIGH	LOW	MED-LOW	MED-HIGH
Motor HP / Speeds	1/3 - 4			3/4 - 4		
Blower wheel size	10" x 8"			12" x 10"		
<b>GENERAL INFORMATION</b>						
Overall dimensions (width x depth x height)	21 1/4" x 55" x 32"			21 1/4" x 61 1/2" x 35 1/4"		
Supply air opening	20" x 20"			24" x 20"		
Return air opening	20" x 20"			20" x 22"		
Filter quantity and size	(2) 12" x 20"			(2) 16" x 20"		
Shipping weight	86 kg (190 lbs)			97 kg (215 lbs)		
Air conditioning, maximum output	3 tons			5 tons		

**Table 4: Technical specifications for model AMT2 (with 1/3 HP motor)**

Models: AMT1 and AMT2	120	140	155
<b>RATING AND PERFORMANCE (SEE TABLE 3)</b>			
<b>ELECTRICAL SYSTEM (SEE TABLE 4 WITH 1/3 HP MOTOR)</b>			
<b>BLOWER DATA</b>			
Blower speed at 0.50" W.C. static pressure	MED-LOW	MED-HIGH	HIGH
Blower speed at 0.25" W.C. static pressure	LOW	MED-LOW	MED-HIGH
Motor HP / Speeds	1/3 - 4		
Blower wheel size	10" x 10"		

**Table 5: Air delivery - CFM with air filter**

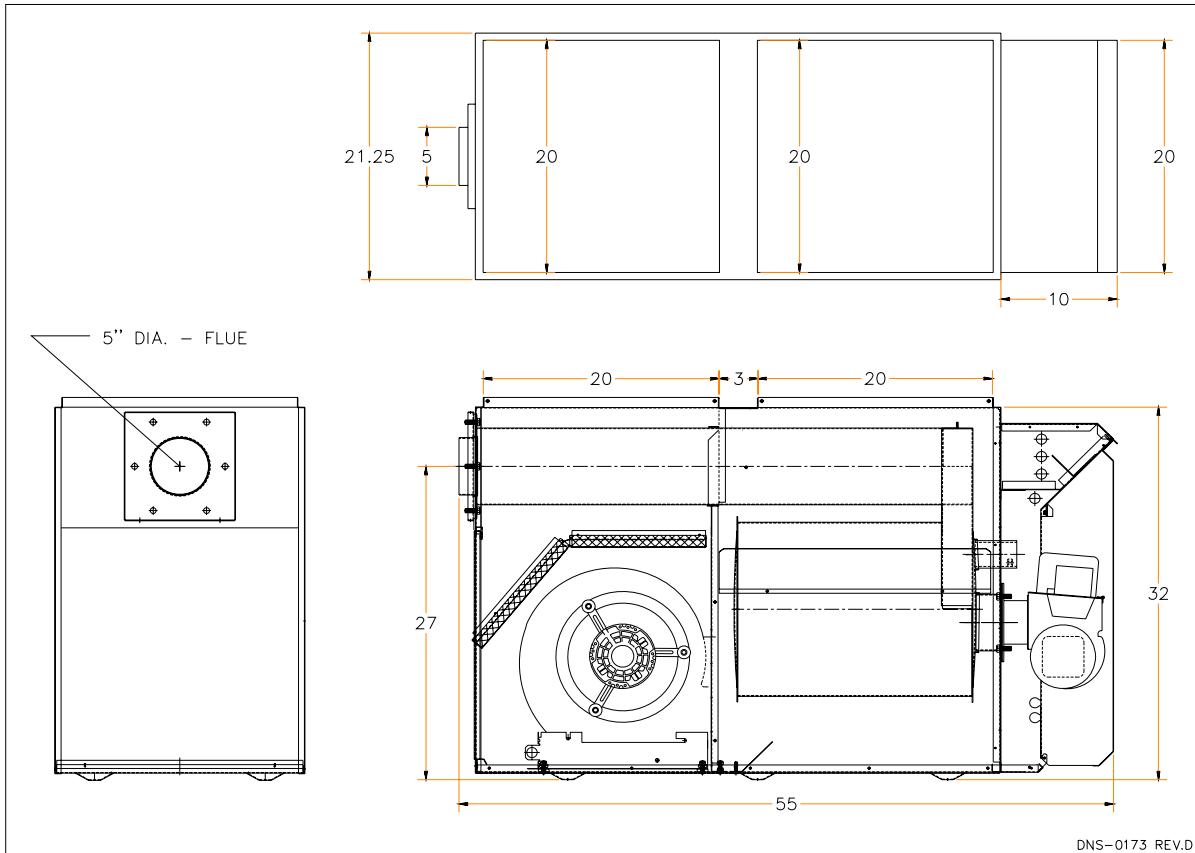
SPEED	AMT75 to AMT105 (1/3 HP MOTOR)			
	EXTERNAL STATIC PRESSURE WITH AIR FILTER			
	0.2" (W.C.)	0.3" (W.C.)	0.4" (W.C.)	0.5" (W.C.)
HIGH	1425	1350	1305	1250
MED-HIGH	1130	1045	1000	950
MED-LOW	840	810	770	740
LOW	725	730	740	745

SPEED	AMT120 to AMT155 (3/4 HP MOTOR)			
	EXTERNAL STATIC PRESSURE WITH AIR FILTER			
	0.2" (W.C.)	0.3" (W.C.)	0.4" (W.C.)	0.5" (W.C.)
HIGH	2080	2041	1965	1864
MED-HIGH	1892	1859	1770	1675
MED-LOW	1556	1475	1394	1318
LOW	1221	1164	1081	998
SPEED	AMT120 to AMT155 (1/3 HP MOTOR)			
	EXTERNAL STATIC PRESSURE WITH AIR FILTER			
	0.2" (W.C.)	0.3" (W.C.)	0.4" (W.C.)	0.5" (W.C.)
HIGH	1650	1600	1560	1510
MED-HIGH	1450	1360	1305	1250
MED-LOW	1215	1180	1130	1100
LOW	850	845	840	840

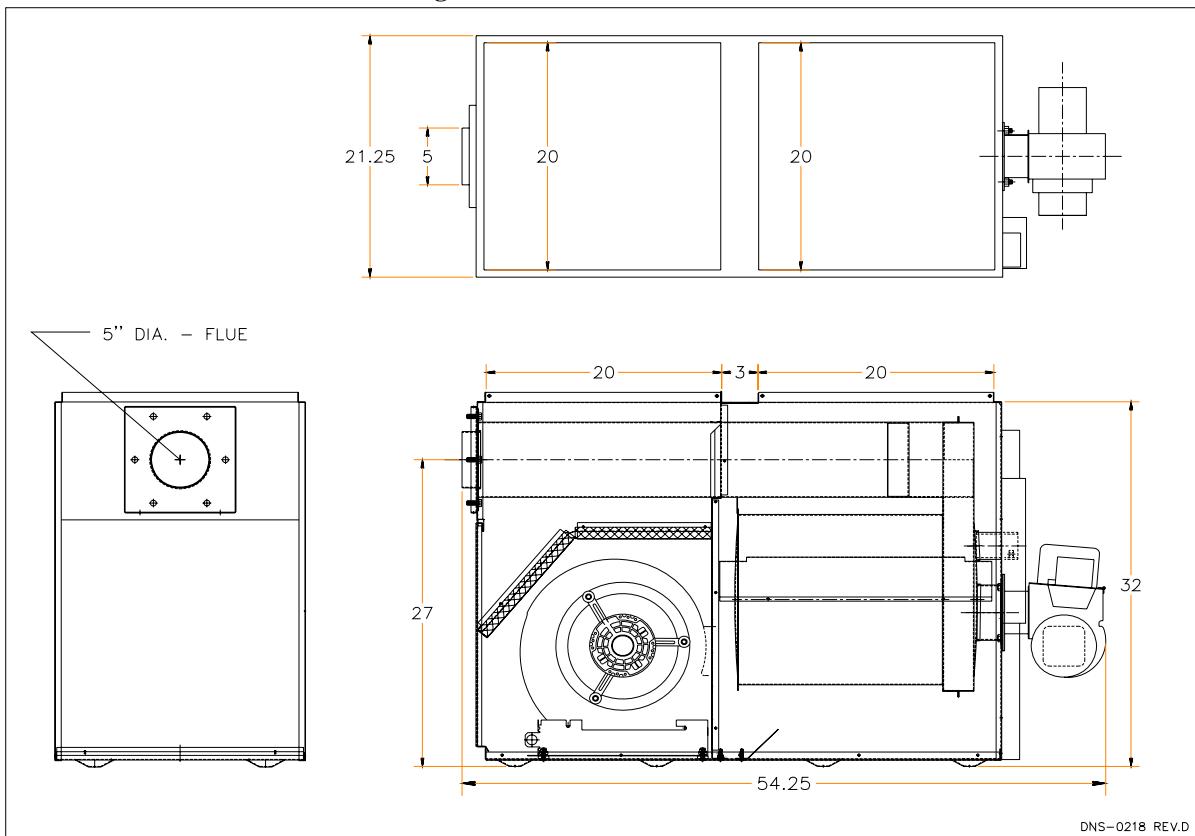
**Table 6: Minimum clearances - combustible materials**

LOCATION	APPLICATION		CLEARANCES (combustible materials)	RECOMMENDED ACCESS FOR SERVICE
SIDES	FURNACE		2.54 cm(1")	0.6 m(24")
	SUPPLY PLENUM WITHIN 1.8 M(6') OF FURNACE		2.54 cm(1")	
BACK	ACCESS PANEL TO BLOWER		10.16 cm(4")	0.6 m(24")
TOP	FURNACE OR PLENUM		50.8 mm(2")	
	HORIZONTAL WARM AIR DUCT WITHIN 1.8 m(6') OF FURNACE		50.8 mm(2")	
BOTTOM	FURNACE (COMBUSTIBLE FLOOR)		0"	
FLUE PIPE	HORIZONTALLY OR BELOW FLUE PIPE		10.16 cm(4")	
	VERTICALLY ABOVE FLUE PIPE		22.86 cm(9")	
FRONT	FURNACE		20.32 cm(8")	0.6 m(24")

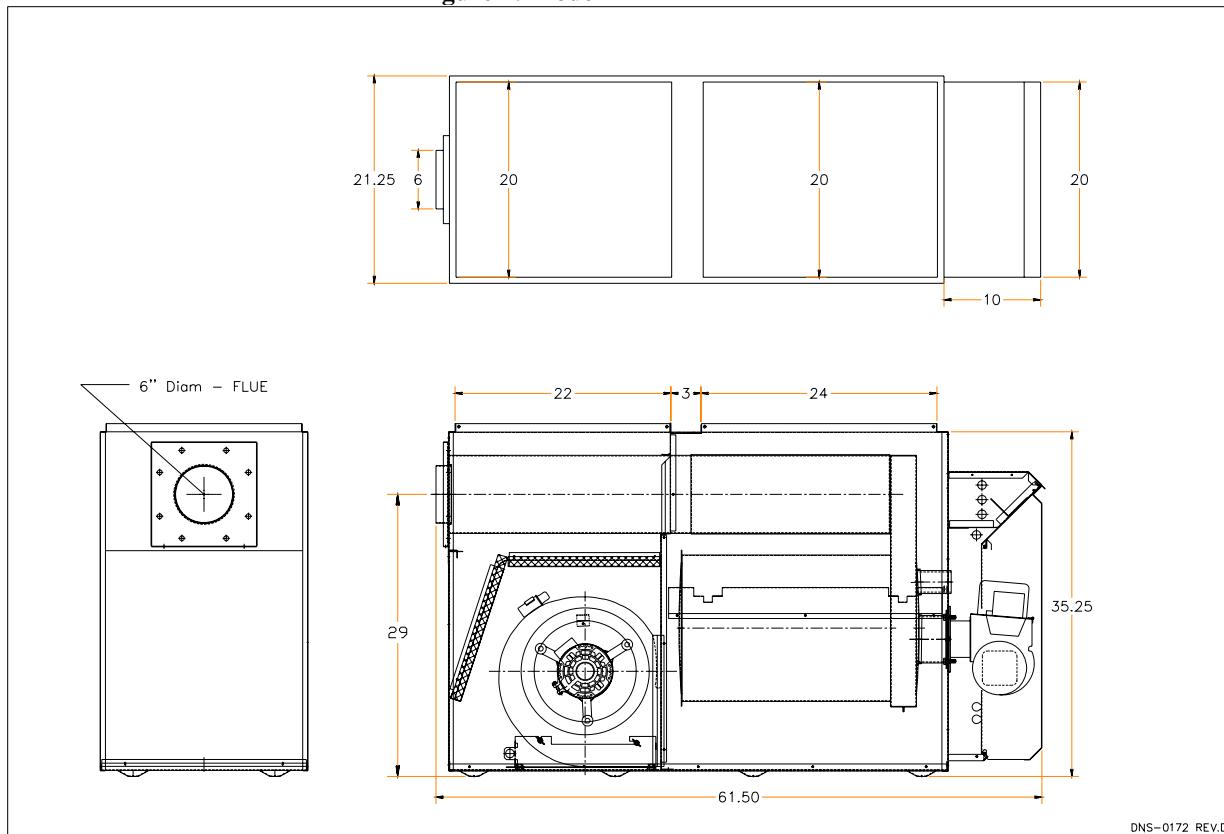
**Figure 2: Model AMT1-IM2**



**Figure 3: Model AMT1-SM1**



**Figure 4: Model AMT2-IM2**



**Figure 5: Model AMT2-SM3**

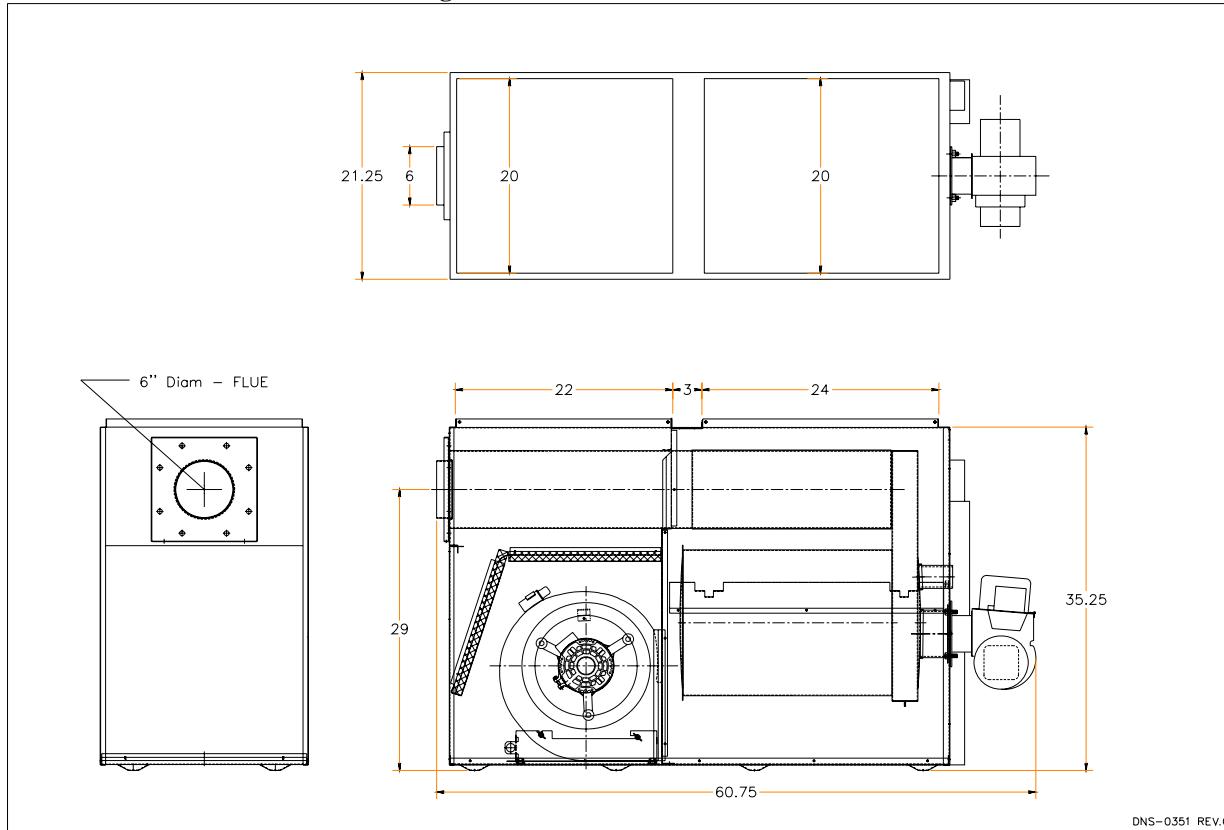
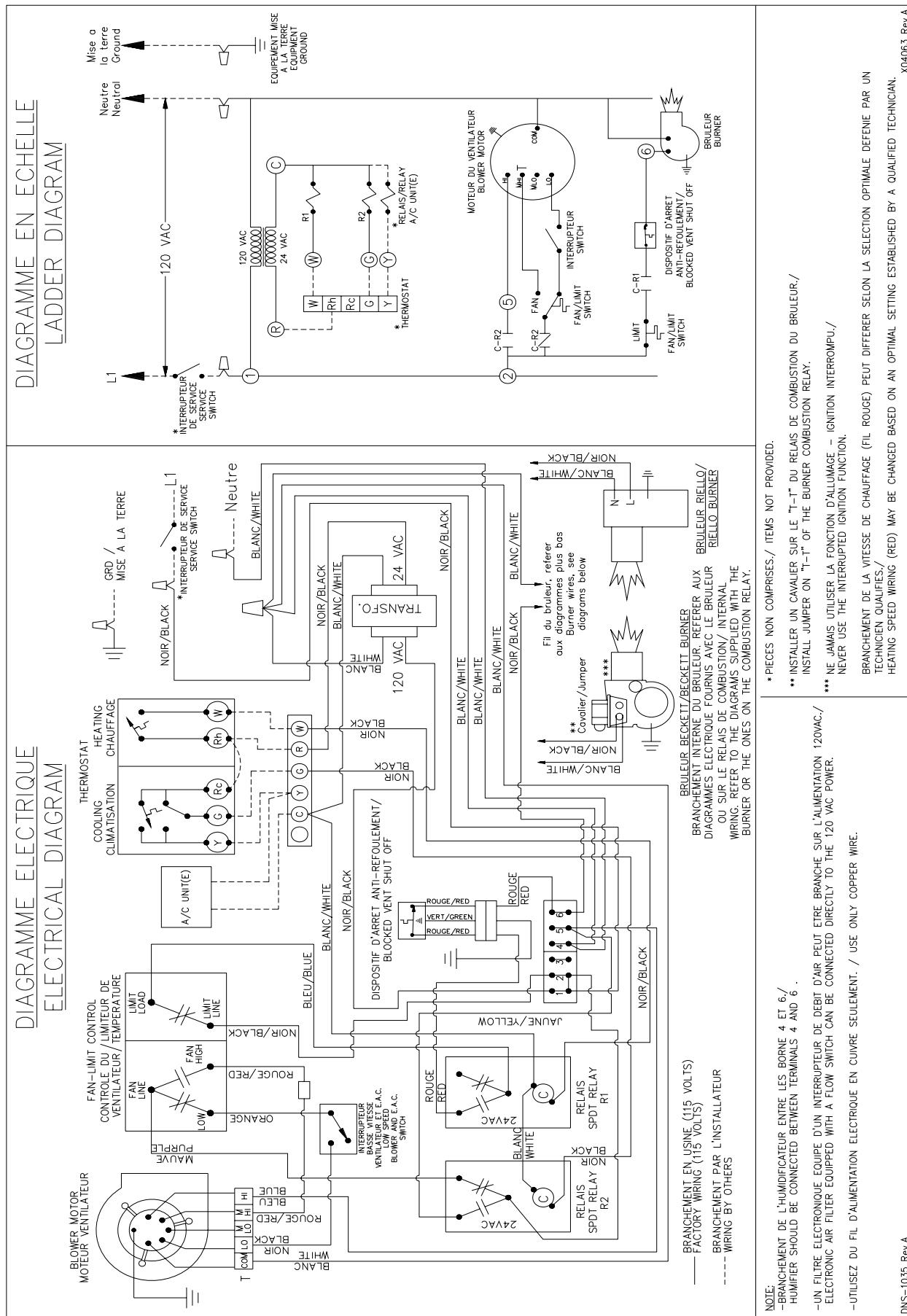


Figure 6: Wiring diagram AMT1-IM2 and AMT2-IM2



**Figure 7: Wiring diagram AMT1-SM1 and AMT2-SM3, heating only**

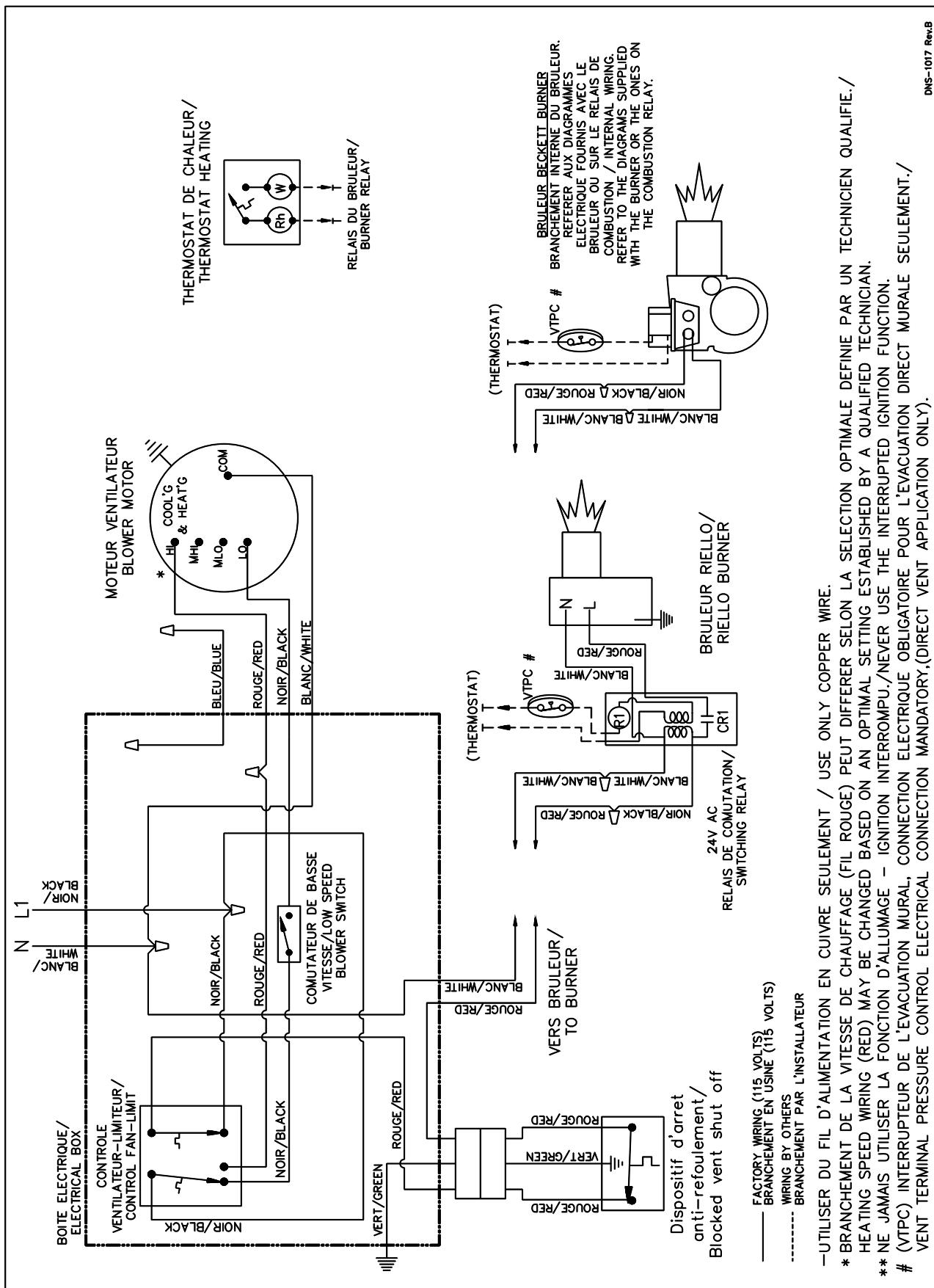
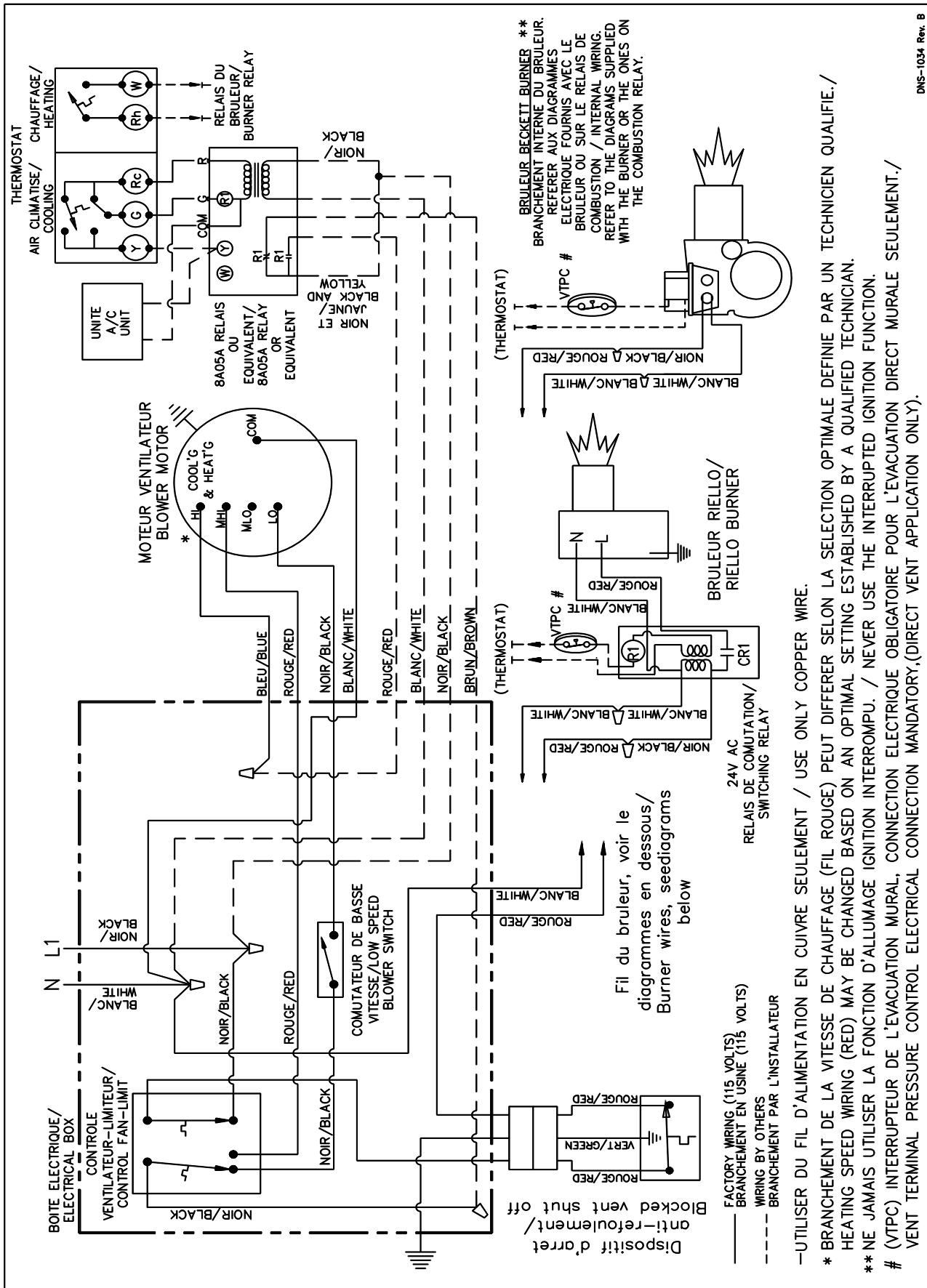
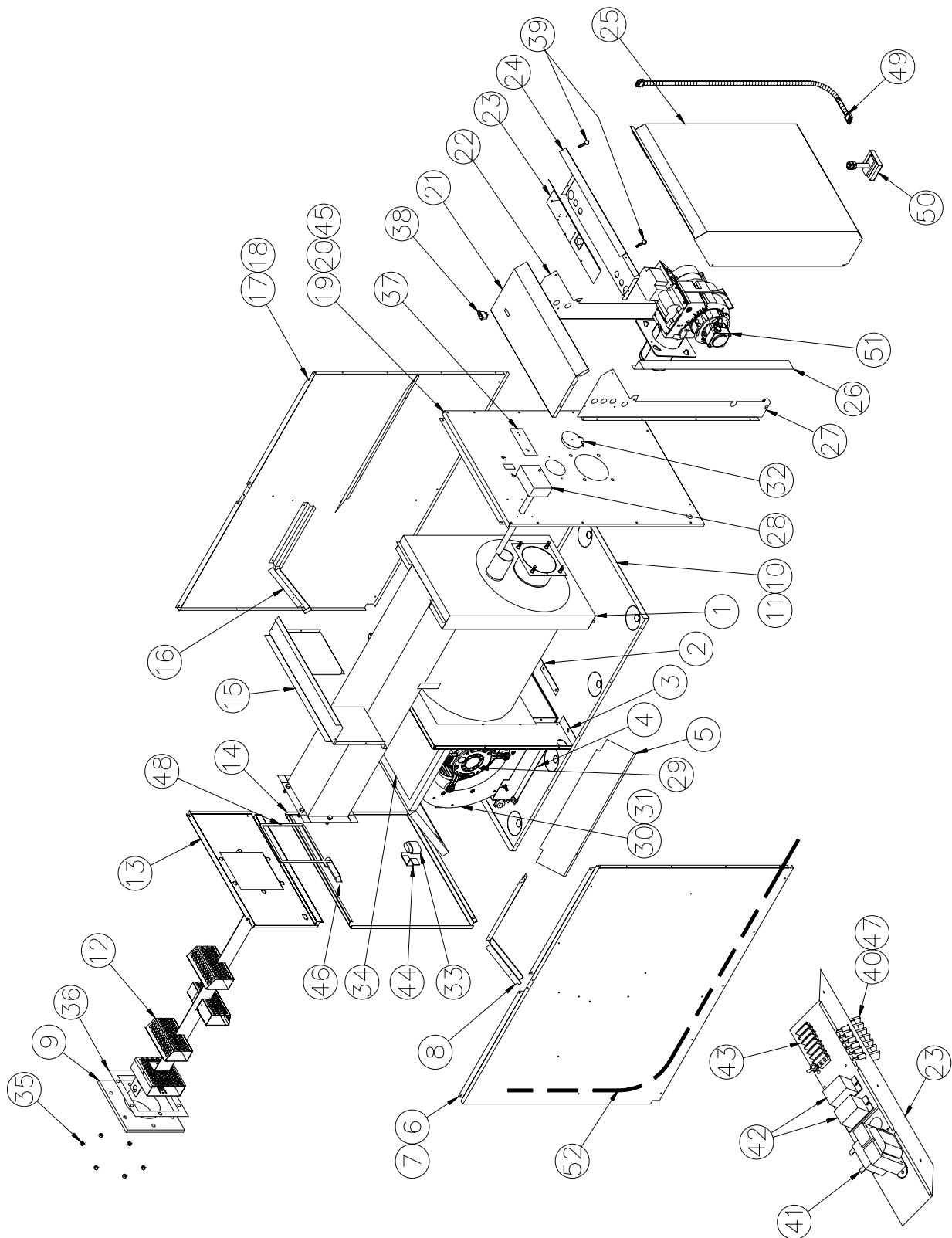


Figure 8: Wiring diagram MT1-SM1 and AMT2-SM3, heating and optional cooling



**Figure 9: Parts list - AMT1-IM2**

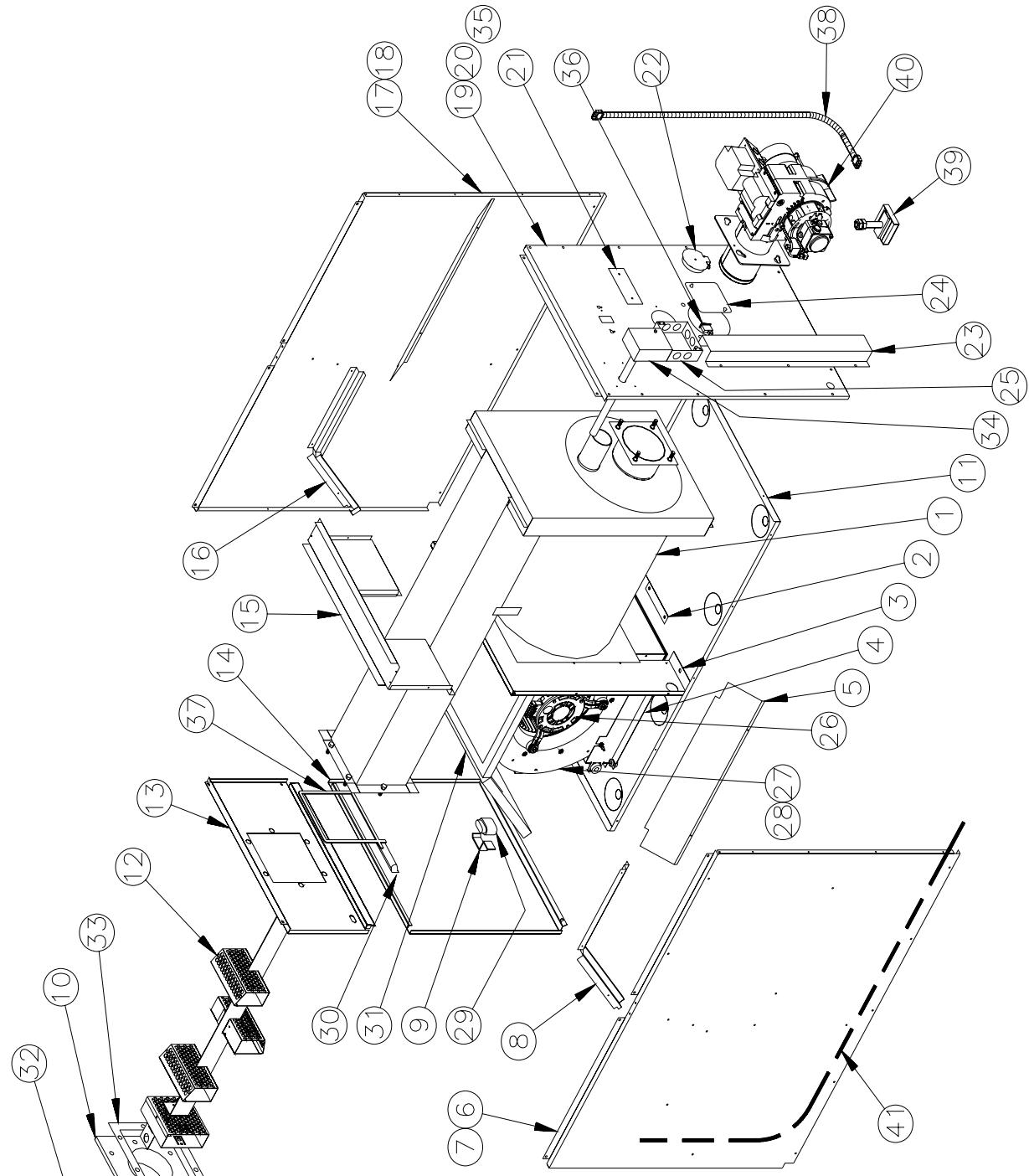


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**Table 7: Parts list - AMT1-IM2**

ITEM	DESCRIPTION	COMMENTS	PART #
1	HEAT EXCHANGER ASSEMBLY	Heat exchanger only	B01701
2	FLOOR BAFFLE		B01708
3	BOTTOM DIVIDER ASSEMBLY	Panel and 3 gaskets included	B01725
4	DD BLOWER SUPPORT		B01724
5	BAFFLE		B01707
6	PANEL ASSEMBLY, LEFT SIDE	Panel, insulation, baffle and filter rack included	B03197-03
7	INSULATION, LEFT SIDE PANEL		B03216-02
8	FILTER SUPPORT		B03371-01
9A	SMOKE BOX		B01697
9B	COVER ASSEMBLY, SMOKE OUTLET		B02200
10	FLOOR ASSEMBLY	Floor, baffle and insulation included	B01812
11	INSULATION		B01526-23
12	BAFFLE ASSEMBLY		B01826-01
13	PANEL ASSEMBLY, TOP REAR	Panel and insulation included	B03374-02
14	DOOR ASSEMBLY, REAR	Door, handle and insulation included	B03202
15	DIVIDER, TOP		B01710
16	FILTER SUPPORT		B01709-01
17	PANEL ASSEMBLY, RIGHT SIDE	Panel, insulation, baffle and filter rack included	B03197-01
18	INSULATION, RIGHT SIDE PANEL		B03216-01
19	FRONT PANEL ASSEMBLY	Panel and insulation included	B01827-01
20	INSULATION, FRONT PANEL ASSEMBLY		B01722
21	TOP PANEL, ELECTRICAL COMPARTMENT		B01208
22	BURNER COMPARTMENT, RIGHT SIDE		B01716-01
23	ELECTRICAL PANEL		B01133
24	ELECTRICAL PANEL, INTERIOR		B01209
25A	ACCESS DOOR ASSEMBLY		B01384
25B	INSULATION, ACCESS DOOR		B01258-01
25C	INSULATION, ACCESS DOOR SIDE		B01259-02
25D	INSULATION, ACCESS DOOR SIDE		B01259-01
26	CORNER CONDUIT		B01220
27	BURNER COMPARTMENT, LEFT SIDE		B01716-02
28	FAN LIMIT, 11-1/2"		R02I002
29	MOTOR ASSEMBLY 1/3 HP	Motor and motor support assembly	B01890-01
30	BLOWER ASSEMBLY, REPLACEMENT	Blower, motor and capacitor	B01403-01
31	BLOWER, 100-8R DD		B03720-02
32	OBSERVATION DOOR ASSEMBLY		B02111
33	CAPACITOR, 5 MF		L01I001
34	PAPER FILTER, 12" x 20" x 1"		Z04F008
35	FLANGE NUT, HEXAGONAL 3/8-16NC BRASS		F07O001
36	GASKET, SMOKE PIPE COVER		B01214
37	THERMODISC PLATE		B01721-02
38	ROCKER SWITCH, SPST		L07F003
39	THUMBUSCREW KIT ASSEMBLY		K03009
40	SINGLE TERMINAL STRIP, 6 BUSS		L05F001
41	TRANSFORMER, 120-24VAC		L01F009
42	RELAY, SPDT 24 VAC		L01H009
43	SCREW TERMINAL STRIP, 6-POSITION		A00294
44	CAPACITOR SUPPORT		B01024
45	GASKET, PEEP HOLE		B01014
46	HANDLE, RECESSED, BLACK		Z99F050
47	BUSS RETAINING CLIP		L05F007
48	SEAL STRIP, 1/4" x 1/8" x 25'		J06L002
49	ELECTRICAL KIT, BVSO EXT.		B03118-01
50	BLOCKED VENT SHUT-OFF BVSO-225		Z06G001
51A	BURNER ASSEMBLY, BECKETT AFG-F3		B00569
51B	BURNER, RIELLO 40-F3		N01F011
52	INTERIOR BVSO ELECTRIC KIT		B03377-01

**Figure 10: Parts list - AMT1-SM1**

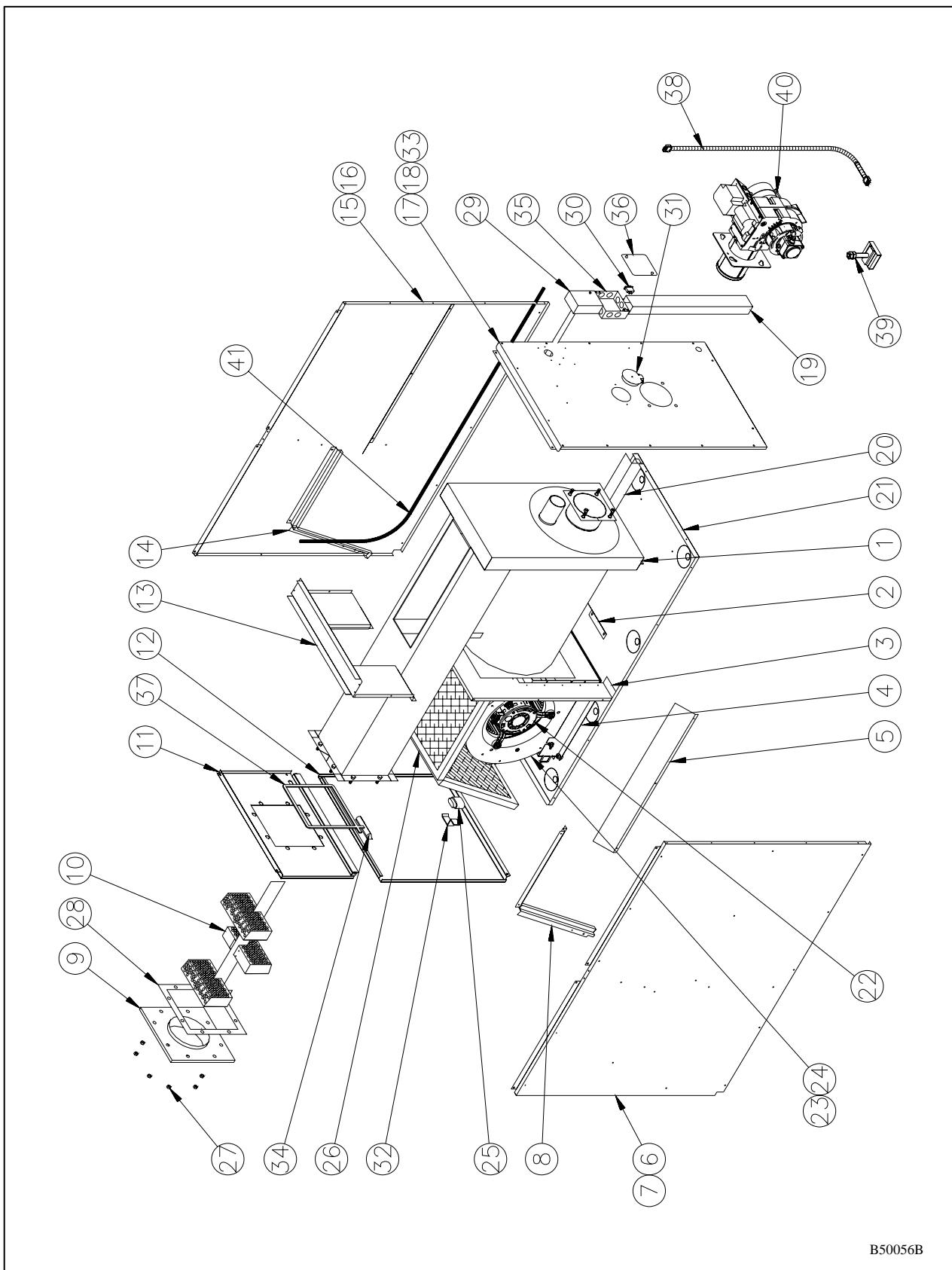


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Table 8: parts list - AMT1-SM1

ITEM	DESCRIPTION	COMMENTS	PART #
1	HEAT EXCHANGER ASSEMBLY	Heat exchanger only	B01701-01
2	FLOOR BAFFLE		B01708
3	BOTTOM DIVIDER ASSEMBLY	Panel and 3 gaskets included	B01725
4	DD BLOWER SUPPORT		B01724
5	BAFFLE		B01707
6	PANEL ASSEMBLY, LEFT SIDE	Panel, insulation, baffle et filter rack included	B03196-03
7	INSULATION, SIDE PANEL		B01723-02
8	FILTER SUPPORT		B03371-01
9	CAPACITOR SUPPORT		B01024
10A	SMOKE BOX		B01697
10B	COVER ASSEMBLY, SMOKE OUTLET		B02200
11	FLOOR ASSEMBLY		B01733-01
12	BAFFLE ASSEMBLY		B01826-01
13	PANEL, TOP REAR		B03370-01
14	REAR DOOR ASSEMBLY	Door, handle and labels included	B03203-01
15	DIVIDER, TOP		B01710
16	FILTER SUPPORT		B01709-01
17	PANEL ASSEMBLY, RIGHT SIDE	Panel, insulation, baffle et filter rack included	B03196-01
18	INSULATION, SIDE PANEL		B01723-01
19	FRONT PANEL ASSEMBLY		B01827-01
20	INSULATION, FRONT PANEL		B01722
21	THERMODISC PLATE		B01843
22	OBSERVATION DOOR ASSEMBLY		B02111
23	CORNER CONDUIT		B01818
24	COMPARTMENT COVER		L02F004
25	ELECTRICAL COMPARTMENT		L02F003
26	MOTOR SUPPORT ASSEMBLY 1/3 HP	Motor and motor support assembly	B01890-01
27	BLOWER ASSEMBLY, REPLACEMENT	Blower, motor and capacitor included	B01403-01
28	BLOWER, 100-8R DD		B03720-02
29	CAPACITOR, 5 MF		L01101
30	HANDLE, RECESSED, BLACK		Z99F050
31	PAPER FILTER, 12" x20" x1"		Z04F008
32	FLANGE NUT, HEXAGONAL 3/8-16NC BRASS		F07C001
33	GASKET, SMOKE PIPE COVER		B01214
34	FAN LIMIT, 11-1/2", HON L6064A		R02I002
35	GASKET, PEEP HOLE		B01014
36	ROCKER SWITCH, SPST		L07F003
37	SEAL STRIP, 1/4" x1/8" x25'		J06L002
38	ELECTRICAL KIT, BVSOEXT.		B03118-01
39	BLOCKED VENT SHUT-OFF BVSO-225		Z06G001
40A	BURNER ASSEMBLY, BECKETT AFG-F3		B00569
40B	BURNER, RIELLO 40-F3		N01F042
40C	BURNER ASSEMBLY, BECKETT (SEALED COMBUSTION)		B02240-01
41	INTERIOR BVSO ELECTRIC KIT		B03333-01

Figure 11: Parts list - AMT2-SM3

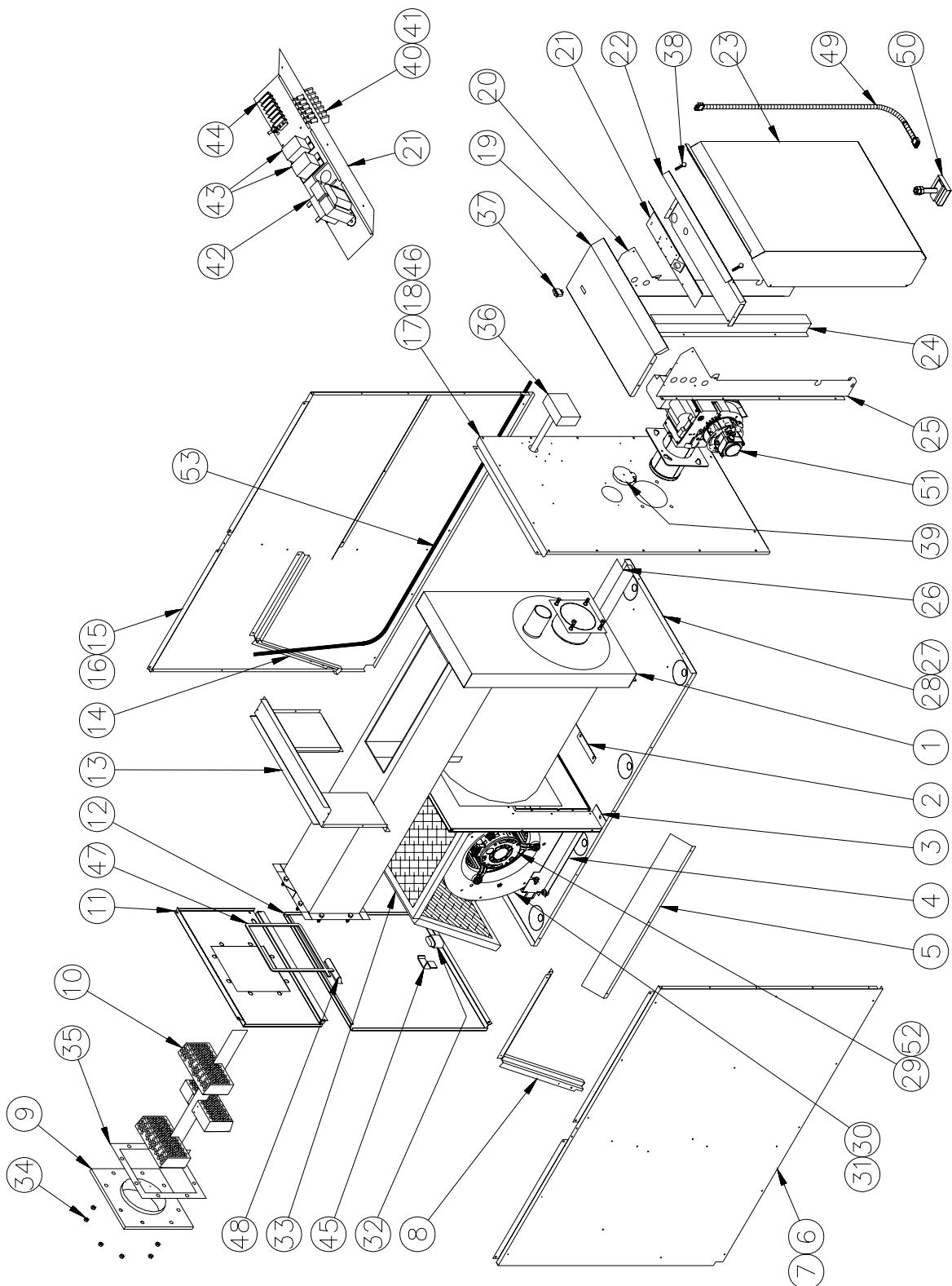


**Table 9: Parts list - AMT2-SM3**

ITEM	DESCRIPTION	COMMENTS	PART #
1	HEAT EXCHANGER ASSEMBLY	Heat exchanger only	B01741
2	FLOOR BAFFLE		B01708
3	BOTTOM DIVIDER ASSEMBLY	Panel and 3 gaskets included	B01831
4	DD BLOWER SUPPORT		B01756
5	LATERAL BAFFLE		B01750
6	PANEL ASSEMBLY, LEFT SIDE	Panel, insulation, baffle and filter rack included	B03205-02
7	INSULATION, LEFT SIDE PANEL		B01766-02
8	FILTER SUPPORT		B01761-02
9A	SMOKE BOX		B01747
9B	COVER ASSEMBLY, SMOKE OUTLET		B02225
10	RADIATOR BAFFLE		B01751
11	PANEL ASSEMBLY, TOP REAR		B03381-01
12	DOOR ASSEMBLY, REAR	Door, handle and label included	B03201-05
13	DIVIDER, TOP		B01754
14	FILTER SUPPORT		B03352-01
15	PANEL ASSEMBLY, RIGHT SIDE	Panel, insulation, baffle and filter rack included	B03205-08
16	INSULATION, RIGHT SIDE PANEL		B01766-01
17	FRONT PANEL ASSEMBLY	Panel and insulation included	B01768-01
18	INSULATION, FRONT PANEL		B01767
19	ELECTRICAL WIRING RACEWAY		B01830
20	WIRE CHANNEL		B01763
21	FLOOR ASSEMBLY		B01769
22A	MOTOR ASSEMBLY 1/3 HP	Motor and motor support assembly	B01890-01
22B	BELLY BAND ASSEMBLY		B01888
23	BLOWER ASSEMBLY, REPLACEMENT (CV 0,50 PP)	Blower, motor and capacitor included	B01404-01
24	BLOWER, 100-10R DD		B03720-01
25	CAPACITOR, 5 MF		L01I001
26	PAPER FILTER, 16" x 20" x 1"		Z04F010
27	FLANGE NUT, HEXAGONAL 3/8-16NC BRASS		F07O001
28	GASKET, SMOKE PIPE COVER		B00205
29	FAN LIMIT, 11-1/2", HON L6064A		R02I002
30	ROCKER SWITCH, SPST		L07F003
31	OBSERVATION DOOR ASSEMBLY		B02111
32	CAPACITOR SUPPORT		B01024
33	GASKET, PEEP HOLE		B01014
34	HANDLE, RECESSED, BLACK		Z99F050
35	ELECTRICAL COMPARTMENT		L02F003
36	COMPARTMENT COVER		L02F004
37	SEAL STRIP, 1/4" x 1/8" x 25'		J06L002
38	ELECTRICAL KIT, BVSO EXT.		B03118-01
39	BLOCKED VENT SHUT-OFF BVSO-225		Z06G001
40A	BURNER ASSEMBLY, BECKETT AFG-F3		B00570
40B	BURNER ASSEMBLY, BECKETT AFG-F6		B00571
40C	BURNER ASSEMBLY, RIELLO 40-F5		N01F043
40D	BURNER ASSEMBLY, RIELLO 40-BF5		N01F010
41	INTERIOR BVSO ELECTRICAL KIT		B03333-02

B50056C

**Figure 12: Parts list - AMT2-IM2**



B50057C

**Table 10: Parts list - AMT2-IM2**

ITEM	DESCRIPTION	COMMENTS	No DESSIN
1	HEAT EXCHANGER ASSEMBLY	Heat exchanger only	B01741
2	FLOOR BAFFLE		B01708
3	BOTTOM DIVIDER ASSEMBLY	Panel and 3 gaskets included	B01764
4	DD BLOWER SUPPORT		B01756
5	LATERAL BAFFLE		B01750
6	PANEL ASSEMBLY, LEFT SIDE	Panel, insulation, baffle and filter rack included	B03204-02
7	INSULATION, LEFT SIDE PANEL		B03217-02
8	FILTER SUPPORT		B01761-02
9A	BREECH PLATE		B01747
9B	COVER ASSEMBLY, SMOKE OUTLET		B02225
10	SOUND TRAP ASSEMBLY		B01751
11	PANEL ASSEMBLY, TOP REAR		B03384-02
12	DOOR ASSEMBLY, REAR		B03200
13	DIVIDER, TOP		B01754
14	FILTER SUPPORT		B03352-01
15	PANEL ASSEMBLY, RIGHT SIDE	Panel, insulation, baffle and filter rack included	B03204-03
16	INUSLATION, RIGHT SIDE PANEL		B03217-01
17	PANEL ASSEMBLY, FRONT	Panel and insulation included	B01768-02
18	INSULATION, FRONT PANEL		B01767
19	TOP PANEL, ELECTRICAL COMPARTMENT		B01208
20	BURNER COMPARTMENT, RIGHT SIDE		B01716-01
21	ELECTRICAL PANEL		B01133
22	ELECTRICAL PANEL, INTERIOR		B01209
23A	ACCESS DOOR ASSEMBLY	Door and insulation included	B01384
23B	INSULATION, ACCESS DOOR		B01258-01
23C	INSULATION, ACCESS DOOR SIDE		B01259-02
23D	INSULATION, ACCESS DOOR SIDE		B01259-01
24	CORNER CONDUIT		B01220
25	BURNER COMPARTMENT, LEFT SIDE		B01716-02
26	WIRE CHANNEL		B01763
27	FLOOR ASSEMBLY		B01867
28	INSULATION		B01526-22
29	MOTOR 3/4 DD 4V		L06I004
30	BLOWER ASSEMBLY REPLACEMENT	Blower, motor and capacitor included	B01406-02
31	BLOWER, 120 - 10T DD		B03720-05
32	CAPACITOR 15 MF		L01I005
33	FILTER, PAPER, 16x20x1		Z04F010
34	FLANGE NUT, HEXAGONAL, 3/8-16NC BRASS		F07O001
35	GASKET, SMOKE PIPE COVER		B00205
36	FAN LIMIT 11 1/2" HON L6064A		R02I002
37	ROCKER SWITCH, SPST		L07F003
38	THUMSCREW KIT ASSEMBLY		K03009
39	OBSERVATION DOOR ASSEMBLY		B02111
40	BUSS RETAINING CLIP		L05F007
41	SINGLE TERMINAL STRIP 6 BUSS		L05F001
42	TRANSFORMER 120-24Volts		L01F009
43	RELAY, SPDT 24 VAC		L01H009
44	SCREW-TERMINAL STRIP, 6 POSITIONS		A00294
45	CAPACITOR SUPPORT		B01024
46	GASKET, PEEP HOLE		B01014
47	SEAL STRIP 1/4" X 1/8" X 25'		J06L002
48	RECESSED HANDLE, BLACK		Z99F050
49	ELECTRICAL KIT, BVSO EXT.		B03118-01
50	BLOCKED VENT SHUT-OFF, BVSO-225		Z06G001
51A	BURNER ASSEMBLY, BECKETT AFG-F3		B00570
51B	BURNER ASSEMBLY, BECKETT AFG-F6		B00571
51C	BURNER, RIELLO 40 F5 VSBT		N01F012
52	BELLY BAND ASSEMBLY		B01889
53	INTERIOR BVSO ELECTRICAL KIT		B01889